500Nm3/H PSA Nitrogen Generator 99.99% Purity For Food, Metallurgy, Chemical

Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: Eco-Tech
- Certification: CE ISO13485 ISO9001
- Model Number: EN4500
- Minimum Order Quantity: 1
- Price: USD 12000-25000 pieces
- Packaging Details: Wooden Case
- Delivery Time: 20 days
- Payment Terms: L/C, D/A, D/P, T/T, Western Union, MoneyGram
- Supply Ability: 1000 pieces per year

Product Specification

- Capacity: 500Nm/h
- Inlet Diameter: DN80
- Outlet Diameter: DN65
- Size: 3000*2000*3750mm 8500 Kg
- Demand For Clean Compressed Air: 41.67
- Recommend Air Compressor: 280Kw 42.6m3/min 10Bar) Or 250Kw (42.6m3/min 8Bar)
- Control System: PLC
- Type: Nitrogen Generator
- Warranty: 1 Year
- Highlight: **500Nm3/H PSA Nitrogen Generator**, **PSA Nitrogen Generator 500Nm3/H**, **99.99% pressure swing adsorption nitrogen generation**

Our Product Introduction

for more products please visit us on psa-generators.com

Product Description

PSA Nitrogen Generator: 500Nm3/H, 99.99% Purity, for Food, Metallurgy, Chemical
Description of 99.99% Purity 500Nm3/H PSA Nitrogen Generator Food, metallurgy, chemical industry applicable

We have been engaged in the assembly of PSA nitrogen generators and oxygen generators in our factory for 15 years, providing approximately 400 sets of PSA nitrogen generators and oxygen generators for domestic and international customers each year, including production, and debugging.

In collaboration with Burkert Valves, we have customized our own double-acting pneumatic valve. Through the design of top and middle pressure equalization,and airflow orifice plates, we continuously optimize and reduce the air consumption ratio of the equipment, thus achieving energy savings. The energy consumption ratio of our equipment has reached the highest level in China. And through our patented silencer, our device noise is controlled to less than 55 db.

In terms of process flow, we have cutting, welding, assembly, filling of molecular sieves, automatic rust removal, spraying, and complete procedures and supporting equipment for commissioning.

In the supply chain aspect, we provide first-line brands such as Atlas Copco, Ingersoll Rand, GDK, Liutech, Bolaite, Hanbell, and BK for air compressors, and provide Boly, Atlas Copco, and Liutech refrigerated dryers, as well as Anshan Jiapeng and Anqing Bailian boosters.
We can provide supporting equipment and accessories.

Currently, our company's products are aimed at end-users and distributors worldwide. We provide customized remote systems, color customization, display interface customization, and many other OEM services. And we also provide ASME standard equipment and pressure tanks for USA and Australian market.

For specific selection, please contact our customer manager. We hope to become your trusted long-term partner.

PN4500 PSA Nitrogen Plant Technical Specification				
lot	Item		Description /Specification	
1	Model/Place of Manufacture		PN4500	
2	Nitrogen making principle		PSA Pressure swing adsorption PSA 吸附(放式)	
3	Application	Operation place	Indoor	
	Environment	Ambient temperature	Min -5 /Max 50 / design temperature37	
		Ambient humidity	Min 40%RH Max90%RH	
4	Capacity		500	Nm3/hr
5	Nitrogen Gas Purity		≥99.99 % Test at outlet of psa Nitrogen	
6	Nitrogen Purity Sensor		HT-TA261 1set	
7	Nitrogen Flowmeter		Japan SMC flowmeter 1 sets	
8	Inlet compress air pressure		0.75 -0.99Mpa	
9	Inlet Oil Content		≤0.001mg/m3	
10	Residual dust		≤0.01um	
11	Residual water		≤0.069mg/m3	
12	Air inlet atmospheric dew point		-15	

13	Demand for clean compressed air	41.67	Nm^3/min	Recommend Air compressor	280Kw (42.6m3/min 10Bar) or 250Kw (42.6m3/min 8Bar)
14	Inlet Diameter			DN80	
15	Outlet Diameter			DN65	
16	Maximum inlet temperature			MAX 30	
17	Allowable working pressure range			Min7.5Kgf / cm2 Max9.9Kgf / cm2	
18	Carbon molecular sieve model/origin			CMS-240	
19	The tower body pipe			2 sets	
20	Air and nitrogen buffer tank			Piped storage tank	
21	Instrument Tank, silencer			PB Silencer ≤55dB(A) patent number:ZL 2015 2 0545860.3	
22	Solenoid valve brand/origin			AirTAC	7 sets
23	Pneumatic valve brand/origin			PB-Customized	11 Sets (two for auto drain unqalified Gas)
24	Control System	Control Power Supply		0.2kw/set 220V 50 HZ	
		PLC		Mitsubishi core integrated screen /or Siemens S7-200 Smart	
		electrical box		built-in	1 set
		touch screen		Mitsubishi core integrated screen/ MCGS	
25	size LxWxH (mm) / Weight:(Kg)			About:3000*2000*3750mm 8500 kg	
26	Price			含税含　交期20天	

2. Working Principles for PSA Nitrogen Generator

A Pressure Swing Adsorption (PSA) nitrogen generator is an automated system that utilizes air as its raw material. By employing carbon molecular sieve as the adsorbent, it applies the principle of pressure reduction desorption to selectively adsorb oxygen from the air, resulting in the separation of nitrogen.

3. Main Features for PSA Nitrogen Generator

- The production of nitrogen involves utilizing ambient air as the raw material, which is readily available in nature. By supplying compressed air and power, nitrogen can be efficiently generated. The purity of nitrogen can be conveniently adjusted according to specific requirements by controlling the input of compressed air.
- The equipment used for nitrogen generation is highly automated, allowing for rapid gas production without the need for continuous monitoring. It can operate unattended and starts producing nitrogen within a short timeframe of 10-15 minutes after startup.
- The equipment itself is designed with simplicity in mind, occupying a small footprint, consuming minimal energy, and offering cost savings. Its streamlined process flow contributes to its compact size and energy efficiency.
- To ensure the durability and long-term use of the molecular sieves, they are filled using the snowstorm method. This technique prevents the pulverization of the molecular sieves caused by the impact of high-pressure airflow, safeguarding their performance and extending their lifespan.
- Regarding the online inspection of imported analyzers, they are characterized by their simplicity, high accessibility, small physical footprint, low energy consumption, and cost-effectiveness.

4. Technical indicators

- Capacity Range : 2~2000Nm3/H
- Purity Range : 95%~99.9999%
- Outlet Pressure :0~6Bar or 0~ 8Bar
- Booster outlet pressure range : 10 to 200Bar
- Service Life 8-10 years as long as regular maintenance

Carbon Molecular Sieve

High quality,high density, compact spring loaded, top/bottom balance, protected by a dedicated pressure sensor.
We usually use CMS-240 for purity below 99.99%
And use CMS-260 for purity of 99.999% in one step .

5. Standard Features

- Siemens PLC
- Customized and improved domestic valves
- 7-inch LCD display
- Taiwan AirTAC solenoid valve

- Chengdu Jiuyin Nitrogen analyzer
- SMC flowmeter
- Professional brand molecular sieve

6. Optional Features

- Remote control system
  - Better valve of brand Gemu, Burkert
  - Dew point analyzer
  - Import Molecular Sieve
  - Italian ODE solenoid valve

Item No.	Capacity	Purity	Size mm	Inlet Diameter	Outlet Diametee r	Weight Kg	Power
PN4005	5Nm3/H	≥99.99%	1200*850*1 500	DN15	DN15	300	AC220V/0.2 KW
PN4010	10Nm3/ H	≥99.99%	1200*900*1 900	DN15	DN15	500	AC220V/0.2 Kw
PN4020	20Nm3/ H	≥99.99%	1450*900*1 900	DN25	DN15	600	AC220V/0.2 Kw
PN4030	30Nm3/ H	≥99.99%	1450*900*2 250	DN32	DN15	700	AC220V/0.2 Kw
PN4040	40Nm3/ H	≥99.99%	1600*1100* 1950	DN32	DN15	800	AC220V/0.2 Kw
PN4050	50Nm3/ H	≥99.99%	1700*1100* 2200	DN40	DN15	1000	AC220V/0.2 Kw
PN4060	60Nm3/ H	≥99.99%	1800*1000* 2300	DN40	DN25	1200	AC220V/0.2 Kw
PN4070	70Nm3/ H	≥99.99%	1800*1000* 2300	DN40	DN25	1800	AC220V/0.2 Kw
PN4080	80Nm3/ H	≥99.99%	1800*1000* 2300	DN40	DN25	1900	AC220V/0.2 Kw
PN4100	100Nm3/ H	≥99.99%	1800*1300* 2450	DN40	DN25	2500	AC220V/0.2 Kw
PN4120	120Nm3/ H	≥99.99%	1800*1300* 2450	DN40	DN25	2600	AC220V/0.2 Kw
PN4150	150Nm3/ H	≥99.99%	2000*1300* 2450	DN40	DN25	2900	AC220V/0.2 Kw
PN4200	200Nm3/ H	≥99.99%	2200*1500* 2650	DN50	DN40	3400	AC220V/0.2 Kw
PN4250	250Nm3/ H	≥99.99%	2500*1600* 2680	DN50	DN40	3800	AC220V/0.2 Kw
PN4300	300Nm3/ H	≥99.99%	2500*1600* 2900	DN50	DN40	5000	AC220V/0.2 Kw
PN4350	350Nm3/ H	≥99.99%	2500*1600* 2900	DN80	DN50	5500	AC220V/0.2 KW
PN4400	400Nm3/ H	≥99.99%	3000*2000* 3750	DN80	DN50	7500	AC220V/0.2 Kw

-Applications-

Semiconductor Silicon Industry:
Protection and cleaning of the atmosphere during semiconductor and integrated circuit manufacturing processes.
Recovery of chemicals used in the manufacturing process.
Electronic Components Industry:
Nitrogen is used for selective welding, purging, and encapsulation, ensuring the production of high-quality electronic components.
Semiconductor Packaging Industry:
Nitrogen is employed for packaging, reduction, and storage purposes.
Powder Metallurgy and Metal Processing Industry:
Nitrogen is used for heat treatment processes like annealing and carbonization of steel, iron, copper, and aluminum products.
It provides furnace protection during high-temperature operations and is also utilized in low-temperature assembly and plasma cutting of metal parts.
Chemical Industry and Advanced Material Industry:
Nitrogen creates an oxygen-free atmosphere in chemical processes, enhancing production safety.
It is used for purging pipes and vessels, filling nitrogen storage tanks, gas displacement, leak detection, combustible gas protection, agitation of chemical reactions, and chemical fiber production.
Nitrogen is also applied in diesel hydrogenation and catalytic reforming processes.
Oil and Gas Industry:
Nitrogen is used in oil refining processes, container machine pipeline nitrogen-filled purging, box leak detection, and nitrogen injection for oil recovery.
Food and Medicine Industry:
Nitrogen plays a vital role in food packaging, preservation, and storage.
It can be used in food drying and sterilization with configurable sterilization filters.
In the medical field, nitrogen is used for medicine packaging, medical replacement gas, and creating a controlled atmosphere for medicine delivery.
By optimizing the application of the SMT industry in these sectors, it leads to improved efficiency, quality, and safety in various manufacturing and production processes.

Ten common questions about nitrogen generators

1.What purity of nitrogen gas can a nitrogen generator produce?
Nitrogen generators offer a versatile range of nitrogen purities, allowing users to tailor their nitrogen gas production to meet specific application requirements. The available purities span a spectrum, starting from standard industrial-grade nitrogen, typically ranging from 95% to 99% purity. This level of purity is suitable for many general industrial processes where nitrogen is used for inerting, blanketing, or as a carrier gas.
For applications that demand higher purity levels, nitrogen generators can produce high-purity nitrogen exceeding 99.9% purity. This level of purity is often required in industries such as electronics, semiconductor manufacturing, and pharmaceuticals, where even trace amounts of impurities can adversely affect product quality or compromise sensitive equipment.
In certain industries, such as electronics manufacturing or scientific research, ultra-high purity nitrogen is essential. Nitrogen generators can produce ultra-high purity nitrogen with purities surpassing 99.999%. Applications that benefit from ultra-high purity nitrogen include semiconductor fabrication, optical fiber production, and analytical instruments like gas chromatography-mass spectrometry.
The choice of nitrogen purity depends on the specific application requirements, taking into account factors such as process sensitivity, desired product quality, and equipment specifications. Nitrogen generators offer the flexibility to adjust the nitrogen purity to precisely match these needs, ensuring reliable and efficient operation across a wide range of industries.

2.What is the working principle of a nitrogen generator?
The working principle of a nitrogen generator is primarily based on either the adsorption technology using molecular sieves or membrane separation technology. Adsorption technology selectively adsorbs oxygen and moisture using a specific adsorbent material, such as molecular sieves, while allowing nitrogen to pass through. Membrane separation technology, on the other hand, utilizes the size and permeability of gas molecules to achieve the separation of nitrogen from other gas components on a membrane.

3.What inputs does a nitrogen generator require, and how does it operate?
A nitrogen generator typically requires air as the input source. When operating the nitrogen generator, air is compressed using an air compressor and then processed through the adsorber with molecular sieves or the membrane separator within the nitrogen generator. Finally, pure nitrogen is obtained as the output. Some nitrogen generators may also require an electrical power supply.

4.How is a nitrogen generator different from nitrogen supply in gas cylinders?
The main difference between a nitrogen generator and nitrogen supply in gas cylinders lies in the mode of nitrogen supply. A nitrogen generator continuously extracts nitrogen from the air, providing a continuous nitrogen supply without the need for cylinder replacements. In contrast, nitrogen supply in gas cylinders requires periodic cylinder replacements, and the supply quantity is limited by the cylinder capacity.

5.What should be considered for the maintenance of a nitrogen generator?
The maintenance of a nitrogen generator typically involves regular cleaning and replacement of the adsorber with molecular sieves or membrane separator, inspection and maintenance of the compressed air system, monitoring nitrogen generation performance, etc. Specific maintenance requirements should be referred to the user manual or guidance provided by the manufacturer of the nitrogen generator.

6.Which industries are nitrogen generators suitable for?
Nitrogen generators are widely used in various industries, including industrial, medical, food and beverage, and laboratory applications. They are commonly used in industries such as chemicals, electronics, and metal processing. In the medical field, they are used for anesthesia and gas delivery. In the food and beverage industry, they are used for packaging and preservation. In laboratories, they are used for atmospheric control and protection of equipment.

7.What is the noise level of a nitrogen generator during operation?
The noise level of a nitrogen generator varies depending on the model and design. Generally, nitrogen generators have low noise levels, especially when compared to traditional compressed air systems. Specific noise levels can be referred to the technical specifications or noise test reports of the nitrogen generator.

8.How long does it take for a nitrogen generator to start producing nitrogen gas?
The startup time of a nitrogen generator depends on the model and specifications. In general, nitrogen generators have short startup times, typically ranging from a few minutes to several tens of minutes. Larger capacity or higher purity requirement nitrogen generators may require longer startup times.

9.Can a nitrogen generator simultaneously produce nitrogen gas and oxygen gas?
The design purpose of a nitrogen generator is to separate oxygen and nitrogen to produce high-purity nitrogen gas. Therefore, in most cases, a nitrogen generator does not simultaneously produce nitrogen gas and oxygen gas. If simultaneous production of nitrogen and oxygen is required, additional equipment or techniques need to be used for further processing.

10.What is the energy consumption of a nitrogen generator?
The energy consumption of a nitrogen generator varies depending on the model, specifications, and operating conditions. Generally, nitrogen generators have relatively low energy consumption, especially when compared to traditional nitrogen supply in gas cylinders. Nitrogen generators are typically adjusted based on the actual nitrogen demand to improve energy efficiency and minimize energy consumption.

OUR SERVICE

1. Setting trace file for every sold product, quarterly survey for every sold product.
2. Providing remote instruction and training for free.
3. Providing on-site services and repairs for free during warranty period
4. Spare parts and on-site service would be charged with best price after warranty period.
5. 7*24 hours online service for free, solution within 48 hours.
6. If customer required, assigning experienced after-sales engineer for on-site service with 7 days. (Visa apply should be considered)

Our Certifications





COMPANY INTRODUCTION—BUSINESS LINE

1) Fabrication line and Automation system
2) Calibration/Testing system, ICT/FCT
3) PSA Oxygen and Nitrogen Generator
4) ABB Instrumentation Agent(Pressure, flow, Level, Temp, Drive, Motor)
5) ODM include Software & Hardware development and structure/fluid simulation
6) Onsite engineering Services / Technology Services: Installation, Commissioning and Maintenance

OUR CLIENTS:

Honeywell 霍尼韦尔 · ABB · 上海电气 SHANGHAI ELECTRIC · ZKH 震坤行 · Qindanda · MGM MULTI GAS MEDIKA · ICA · BOSCH Invented for life · Yanfeng · SIMCO · AMETEK FLOORCARE & SPECIALTY MOTORS · 绿塔 AIR CLEANSE · YOKOGAWA · Unit Safety Ltd · BYD · 富士康 FOXCONN · 迈邦生物 MediumBank · 比亚迪汽车 BYD AUTO

OUR PARTNERS:

上海交通大學 SHANGHAI JIAO TONG UNIVERSITY

Warranty

After Sales Support

The Guarantee/Warranty Period shall be a period of twelve months after on-site startup & commissioning or eighteen months after shipment, whichever occurs first. If any trouble or defect, originating with the design, material, and workmanship or operating characteristics of any Goods, arises at any time during GUARANTEE/WARRANTY period, PB shall, at his own expense and as promptly as possible, make such alterations, repairs and replacements.

On-Site Support

PB can do paid services of on-site startup, commissioning, installation supervision, training, by providing purchaser with the services of qualified English-speaking
engineer at step shall obtain all permits and licenses required to perform the services under this Agreement.

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